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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/455,991	12/06/1999	HISASHI OHTANI	07977/213002	5835

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EXAMINER
DIAZ, JOSE R

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 06/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/455,991	OHTANI ET AL.	
	Examiner	Art Unit	
	José R. Díaz	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-12 and 14-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-12, 14-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *08/998,964* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 18, 2001 has been entered.

Claim Objections

➢ Applicant is advised that should claim 8 be found allowable, claim 19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

➢ The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

➢ Claims 6-8 and 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 6 and 7 recite the limitation "the metal element added region". There is insufficient antecedent basis for this limitation in the claims. Claims 8 and 18-22 are rejected due to their dependency on claim 6.

Claim Rejections - 35 USC § 102

➢ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

➢ Claims 6, 8-12, 14, 16, 19, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (US Patent No. 5,529,937).

Regarding claims 6, 9 and 23, Zhang et al. teach a method of manufacturing a semiconductor device (see cols. 1-26) comprising: forming an amorphous

semiconductor film (304, 505, 604) on an insulating surface (302, 502, 602) (see Figs. 3A, 7A and 8A); introducing a metal element (300, 506, 600) being capable of promoting crystallization of the amorphous semiconductor film to from a first metal element added region (consider the regions cover with the masks 305, 603 and 503 of Figs. 3A-3B, 7A-7B, and 8A-8B) and a second metal added region (consider the opening 300, 504 and 605 in Figs. 3A-3B, 7A-7B, and 8A-8B); crystallizing the amorphous semiconductor film so that a crystal growth proceeds in a crystal growth direction parallel to the insulating surface from the first metal element added region and a second metal element added region thereby to portion, respectively, in a crystalline semiconductor film (see arrows in Figs. 3A-3B, 7B and 8B); patterning the crystalline semiconductor film (306, 307, 505', 606, 607) to form at least a crystalline semiconductor island using only the first crystalline portion while the second crystalline portion is not used to form the crystalline semiconductor island (see Figs. 3B, 7C and 8C); wherein carriers move in the crystalline semiconductor island in a carrier moving direction identical with the crystal growth direction (see col. 12, lines 58-65); wherein the metal element added region is located apart from the crystalline semiconductor island by a distance (consider regions other than the regions covered by the islands 306, 307, 505', 606, 607 in Figs. 3B, 7C and 8C); wherein the metal element added region has a length extending longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the metal element added region (see consider regions other than the regions covered by the islands 306, 307, 505', 606, 607 in Figs. 3B, 7C and 8C).

Regarding claims 8, 10 and 19, Zhang et al. teach that the metal element is nickel (see col. 13, lines 14-15; col. 17, lines 61-62; and col.19, lines 39-40).

Regarding claim 11, Zhang et al. teach that the metal element is introduced by an ion implantation (see col. 11, lines 29-32).

Regarding claim 12, Zhang et al. teach that the metal element is introduced by coating a solvent comprising the metal element (see col. 9, lines 14-19).

Regarding claims 14 and 16, Zhang et al. teach that the semiconductor film comprises silicon (see for example col. 22, lines 9-26).

➢ Claims 6-12 and 14-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al. (US Patent No. 6,077,731).

Regarding claims 6-7, 9 and 23, Yamazaki et al. teach a method of manufacturing a semiconductor device (see cols. 1-126) comprising: forming an amorphous semiconductor film (10, 93, 176, 270, 360, 442, 552) on an insulating surface (9, 92, 175, 269, 359, 441, 551) (see Figs. 21A-21E, 26A-26E, 31A-31E, 38A-38E, 44A-44E, 49A-49E, 56A-56E); introducing a metal element (13, 96, 179, 273, 363) being capable of promoting crystallization of the amorphous semiconductor film to from a first metal element added region (consider the regions cover with the masks 11, 94, 177, 271, 361, 443, 553 of Figs. 21A-21E, 26A-26E, 31A-31E, 38A-38E, 44A-44E, 49A-49E, 56A-56E) and a second metal added region (consider the opening 12, 95, 178, 272, 362, 554 in Figs. 21A-21E, 26A-26E, 31A-31E, 38A-38E, 44A-44E, 49A-49E, 56A-56E); crystallizing the amorphous semiconductor film so that a crystal growth proceeds in a crystal growth direction parallel to the insulating surface from the first metal element

added region and a second metal element added region thereby to portion, respectively, in a crystalline semiconductor film (see arrows in Figs. 21A-21E, 26A-26E, 31A-31E, 38A-38E, 44A-44E, 49A-49E, 56A-56E); patterning the crystalline semiconductor film (17, 100, 183, 277, 366, 560) to form at least a crystalline semiconductor island using only the first crystalline portion while the second crystalline portion is not used to form the crystalline semiconductor island (see Figs. 21A-21E, 26A-26E, 31A-31E, 38A-38E, 44A-44E, 49A-49E, 56A-56E); wherein carriers move in the crystalline semiconductor island in a carrier moving direction identical with the crystal growth direction (see col. 14, lines 12-18, and 55-65; col. 15, lines 5-8, col. 16, lines 3-13 and Figs. 1-59D); wherein the metal element added region is located apart from the crystalline semiconductor island by a distance (consider regions other than the regions covered by the islands 17, 100, 183, 277, 366, 560 in Figs. 1-59D); wherein the metal element added region has a length extending longer from an end portion of the crystalline semiconductor island in a longitudinal direction of the metal element added region (see consider regions other than the regions covered by the islands 17, 100, 183, 277, 366, 560 in Figs. 1-59D).

Regarding claims 8, 10 and 19, Yamazaki et al. teach that the metal element is nickel (see col. 11, lines 66-67 and col. 12, lines 1-2).

Regarding claims 11 and 12, Yamazaki et al. teach that the metal element is introduced by an ion implantation or by coating a solvent comprising the metal element (see col. 12, lines 24-31).

Regarding claims 14 and 18, Yamazaki et al. teach that the semiconductor film comprises silicon (see for example col. 11, lines 43-61).

Regarding claims 15-16 and 20-21, Yamasaki et al. teach TFT transistor having an S value not lower 75 mV/dec and not higher than 100 mV/dec (see col. 16, lines 48-67 and col. 17, lines 1-16).

Regarding claims 17 and 22, Yamasaki teach that the semiconductor device is used at least in video camera (see Figure 60A-60F).

Response to Arguments

➢ Applicant's arguments with respect to claims 6-12 and 14-23 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (703) 308-6078. The examiner can normally be reached on 9:00 - 5:00 Monday, Tuesday, Thursday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 746-3891 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JRD
June 13, 2002

EDDIE LEE
SUPERVISORY PATENT EXAMINER
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